

CLAIMS

What is claimed is:

1. An aircraft radio antenna assembly comprising:

a mast;

an omni-directional antenna connected to a first end of the mast; and

a pivot and movable latch connection system at a second end of the mast,

wherein, when the pivot and latch connection system is attached to an aircraft, the mast can be located at a stowed position or pivoted up to a deployed position and latched into the deployed position.

2. An aircraft radio antenna assembly as in claim 1 wherein the mast comprises an aerodynamic main section, an aircraft mounting section forming part of the pivot and movable latch connection system, and a breakaway connection between the main section and the aircraft mounting section.

3. An aircraft radio antenna assembly as in claim 1 wherein the pivot and movable latch connection system comprises the mast having an aircraft mounting section with a base section having a pivot section at a rear end of the base section, and a mast pivot bracket pivotably connected to the pivot section and adapted to be stationarily connected to the aircraft.

4. An aircraft radio antenna assembly as in claim 3 wherein the aircraft mounting section further comprises a latch receiver at a front end of the base section, and

the pivot and movable latch connection system further comprises a movable latch located at a lateral side of the mast adapted to latch with the latch receiver.

5. An aircraft radio antenna assembly as in claim 4 wherein the aircraft mounting section comprises two of the latch receivers and the pivot and movable latch connection system comprises two of the movable latches, the latches being located on opposite lateral sides of the mast.

6. An aircraft radio antenna assembly as in claim 4 wherein the latch comprises a latch plunger and a spring biasing the latch plunger in a forward direction towards the latch receiver.

7. An aircraft radio antenna assembly as in claim 6 wherein the latch further comprises a handle fixedly connected to the latch plunger and a latch bracket having the latch plunger and spring connected thereto, wherein the handle is adapted to be moved by a user to move the latch plunger to an unlatched position, and wherein the handle is adapted to engage the latch bracket and retain the latch plunger at the unlatched position.

8. An aircraft radio antenna assembly as in claim 6 wherein a front end of the latch plunger comprises a tapered shape and the latch receiver comprises a tapered hole for receiving the front end of the latch plunger.

9. An aircraft radio antenna assembly as in claim 8 wherein the latch receiver comprises a curved aerodynamic front end.

10. An aircraft radio antenna assembly as in claim 3 wherein the mast pivot bracket comprises forward facing wedge surfaces and the mast base comprises rearward facing tapered surfaces which engage the wedge surfaces when the mast is located at the deployed position to wedge the base mast in a downward direction towards the aircraft.

11. An aircraft radio antenna assembly as in claim 3 wherein a pivotal connection between the mast and the mast pivot bracket is located at an extended distance from the mast base such that the mast base is located at an elevated position relative to the aircraft when the mast is located at its stowed position.

12. An aircraft radio antenna assembly as in claim 3 further comprising a boot connected to a hole in the mast base, the boot being adapted to be connected to the aircraft and provide a sealed collapsible path for an antenna cable to extend through the boot between the aircraft and the mast.

13. An aircraft radio antenna assembly as in claim 1 wherein the pivot and movable latch connection system comprises a first latch for latching the mast in the stowed position and at least one second latch located at a lateral side of the mast for latching the mast in the deployed position.

14. An aircraft radio antenna assembly as in claim 13 wherein the first latch comprises a latch plunger biased in a rearward direction and the at least one second latch comprises a latch plunger biased in a forward direction.

15. An aircraft radio antenna assembly comprising:

an antenna; and

a mast having the antenna connected to a first end of the mast, the mast comprising an aircraft mounting section located at a second end of the mast, a main section extending from the aircraft mounting section to the first end of the mast, and a breakaway connection between the main section and the aircraft mounting section.

16. An aircraft radio antenna assembly as in claim 15 wherein the breakaway connection comprises fasteners connecting the main section to the aircraft mounting section, wherein the fasteners are comprised of material which is weaker than material forming the main section and the aircraft mounting section.

17. An aircraft radio antenna assembly as in claim 16 wherein the fasteners comprise rivets.

18. An aircraft radio antenna assembly as in claim 15 further comprising a pivot and movable latch connection system adapted to connect the mast to an aircraft, the connection system comprising the aircraft mounting section being pivotably mounted to a mast pivot bracket adapted to be fixedly connected to the aircraft, and at least one latch adapted to be fixedly connected to the aircraft for latching the aircraft mounting section in a deployed position relative to the aircraft.

19. An aircraft radio antenna assembly as in claim 18 wherein the aircraft mounting section comprises a base section having a pivot section at a rear end of the base section which is pivotably connected to the mast pivot bracket, wherein the pivot section has a pivot axis

located at an extended distance away from a top side of the base section.

20. An aircraft radio antenna assembly as in claim 19 wherein the aircraft mounting section further comprises a latch receiver at a front end of the base section, and the at least one latch is located on the aircraft at a lateral side of the mast and adapted to latch with the latch receiver.

21. An aircraft radio antenna assembly as in claim 20 wherein the aircraft mounting section comprises two of the latch receivers and the pivot and movable latch connection system comprises two of the latches, the latches being located on opposite lateral sides of the mast.

22. An aircraft radio antenna assembly as in claim 20 wherein the latch comprises a latch plunger and a spring biasing the latch plunger in a forward direction towards the latch receiver.

23. An aircraft radio antenna assembly as in claim 22 wherein the latch further comprises a handle fixedly connected to the latch plunger and a latch bracket having the latch plunger and spring connected thereto, wherein the handle is adapted to be moved by a user to move the latch plunger to an unlatched position, and wherein the handle is adapted to engage the latch bracket and retain the latch plunger at the unlatched position.

24. An aircraft radio antenna assembly as in claim 23 wherein a front end of the latch plunger comprises a tapered shape and the latch receiver comprises a tapered hole for receiving the front end of the latch plunger.

25. An aircraft radio antenna assembly as in claim 20 wherein the latch receiver comprises a curved aerodynamic front end.

26. An aircraft radio antenna assembly as in claim 18 wherein the mast pivot bracket comprises forward facing wedge surfaces and the mast base comprises rearward facing tapered surfaces which engage the wedge surfaces when the mast is located at the deployed position to wedge the base mast in a downward direction towards the aircraft.

27. An aircraft radio antenna assembly as in claim 18 wherein a pivotal connection between the mast and the mast pivot bracket is located at an extended distance from the mast base such that the mast base is located at an elevated position relative to an aircraft when the mast is located at its stowed position.

28. An aircraft radio antenna assembly as in claim 15 further comprising a boot connected to a hole in the aircraft mounting section, the boot being adapted to be connected to the aircraft and provide a sealed path for an antenna cable to extend through the boot between the aircraft and the mast.

29. An aircraft radio antenna assembly as in claim 15 wherein the pivot and movable latch connection system comprises a first latch for latching the mast in a stowed position and at least one second latch connected to the aircraft which is located at a lateral side of the mast for latching the mast in a deployed position.

30. An aircraft radio antenna assembly as in claim 29 wherein the first latch comprises a latch plunger biased

in a rearward direction and the at least one second latch comprises a latch plunger biased in a forward direction.

31. An aircraft antenna mast connection system comprising:

a mast pivot bracket connected to an aircraft, the mast pivot bracket comprising a base section attached to the aircraft and a pivot section forming a pivot axis at an extended distance from the base section; and

a mast base pivotably connected to the mast pivot bracket at the extended distance from the base section, the mast base having a hole with an antenna cable passing from the aircraft and through the hole,

wherein rotation of the mast base from a deployed position with the mast base being against the aircraft to a stowed position with the mast base being spaced from the aircraft provides an enlarged radius of curvature for the antenna cable provided by the pivot axis being located at the extended distance from the base section.

32. An aircraft antenna mast connection system as in claim 31 wherein the extended distance is about 0.75 in.

33. An aircraft antenna mast connection system as in claim 31 wherein the mast pivot bracket comprises rearward and downward beveled surfaces at a front side of the base section on opposite sides of the pivot section which are adapted to be contacted by mating surfaces on a

rear end of the mast base to wedge the rear end of the mast base towards the aircraft in the deployed position.

34. An aircraft antenna mast connection system as in claim 31 further comprising a resilient collapsible boot connected between the mast base at the hole and the aircraft, wherein the antenna cable passes through the resilient boot from the aircraft and through the hole.

35. An aircraft antenna mast connection system as in claim 31 further comprising a movable latch connected to the aircraft and a latch receiver connected to the mast base, wherein the movable latch is located at a lateral side of the mast base when the mast base is in the deployed position and comprises a latch plunger movable in a forward direction to latch with the latch receiver.

36. An aircraft antenna mast connection system as in claim 35 wherein the latch receiver comprises a front side with a curved aerodynamic shape and a rear side with a hole for receiving a front end of the latch plunger.

37. An aircraft antenna mast connection system as in claim 35 further comprising a second movable latch located on an opposite lateral side of the mast base.

38. An aircraft antenna mast connection system as in claim 35 wherein the latch comprises a spring biasing the latch plunger in a forward direction towards the latch receiver, and wherein the latch further comprises a handle fixedly connected to the latch plunger and a latch bracket attached to the aircraft having the latch plunger and spring connected thereto, wherein the handle is adapted to be moved by a user to move the latch plunger to an unlatched position, and wherein the handle is

adapted to engage the latch bracket and retain the latch plunger in the unlatched position.

39. An aircraft antenna mast connection system comprising:

a mast pivot bracket connected to an aircraft;

an aircraft mounting section of an antenna mast, the aircraft mounting section comprising a mast base and at least one latch receiver, wherein the mast base is pivotably connected to the mast pivot bracket at a first end of the mast base and the at least one latch receiver is attached to an opposite second end of the mast base; and

at least one movable latch attached to the aircraft, the latch comprising a spring loaded plunger adapted to latch with the at least one latch receiver when the aircraft mast is moved to a deployed position.

40. An aircraft antenna mast connection system as in claim 39 wherein the second end is a front end of the mast base and the at least one latch receiver comprises a plunger receiving hole extending into a rear side of the latch receiver.

41. An aircraft antenna mast connection system as in claim 39 wherein the second end is a front end of the mast base, and wherein the at least one latch receiver comprises two latch receivers located on opposite lateral sides of the mast base at the front end.

42. An aircraft antenna mast connection system as in claim 39 wherein the at least one movable latch is

located along a lateral side of the mast base when the mast base is located at the deployed position.

43. An aircraft antenna mast connection system as in claim 39 wherein the at least one movable latch comprises two movable latches located on opposite lateral sides of the mast base.

44. An aircraft antenna mast connection system as in claim 39 wherein the mast pivot bracket comprises a base section attached to the aircraft and a pivot section forming a pivot axis at an extended distance from the base section, wherein the mast base is pivotably connected to the pivot section at the pivot axis.

45. An aircraft antenna mast connection system as in claim 44 wherein the base section of the mast pivot bracket comprises rearward and downward beveled surfaces at a front side of the base section on opposite sides of the pivot section which are adapted to be contacted by mating surfaces on a rear end of the mast base to wedge the rear end of the mast base towards the aircraft in the deployed position.

46. An aircraft antenna mast connection system as in claim 39 further comprising a resilient boot connected between the mast base and the aircraft, the boot providing a collapsible sealed conduit for an antenna cable to extend between the aircraft and the antenna mast.

47. A method of positioning an aircraft antenna mast at a deployed position comprising steps of:

pivoting the aircraft antenna mast on a mast pivot bracket at a rear side of the mast from a stowed position to the deployed position; and

moving a latch on the aircraft from an unlatched position to a latched position, wherein the latch is located along a lateral side of the mast and the latch has a latching plunger which moves forward when the latch is moved to the latched position to engage a latch receiver on a front side of the mast.